**Mustafa Sheikh**

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**SKILLS**

**Software:** Python | C/C++ | Git | MATLAB | Simulink | Julia |ASTC Vlab | Jira | Synopsys Virtualizer

**Engineering:** Agile | CAN | DFSS Black Belt | HIL | UML| dSPACE tools | Testing and Validation

**WORK EXPERIENCE**

**General Motors,** Milford, MI

Senior Virtual Hardware Engineer Nov2022 – Sept 2024 Utilized hardware virtualization to accelerate delivery of software for Software-Defined Vehicle platform.

• Championed and secured organizational buy-in for $2 million Synopsys Virtualizer based 'shift-left' approach to Wireless Connectivity Module development enabling exploratory early development.

• Led cross-functional development and delivery of Synopsys Virtualizer based Occupant Safety Module with test software, accelerating integration testing efforts by 4 months ahead of official software availability.

• Successfully launched next-generation ASTC Vlab based Central Gateway Module 8 months ahead of hardware schedule, driving concept-to-release progress and facilitating early software testing and integration.

• Leveraged expertise in virtual workflows to collaborate with product owners and release train engineers to integrate virtual hardware team into enterprise level agile framework.

• Led team of 12 engineers to deliver integrated virtual subsystems packages in predictable increments as part of in-house scaled agile strategy increasing transparency and resource allocation.

• Developed strategy to benchmark virtualization solutions serving as the basis for toolchain decisions worth $100k+ .

Senior Connectivity Development Engineer Mar 2021 – Nov 2022

Developed features for legacy PHEV and EVs OnStar customers and next generation Telematics modules

• Spearheaded sourcing of Connectivity Module serving as the cornerstone for the Software-Defined Vehicle platform by leading a cross-functional team to select best supplier based on internal metrics.

• Led multidisciplinary requirements development meetings for features representing $10s of millions in business value.

• Leveraged agile principles to preempt resolve issues while keeping leadership apprised for quick updates in strategy.

• Helped safeguard $10s of millions in revenue and critical safety features for hundreds of thousands of OnStar customers impacted by the 2G/3G sunset by developing a mitigation plan with senior leaders.

**Aerotek (Contract at General Motors),** Warren, MI

System Integration Engineer Sep 2020 – Mar 2021

Vehicle Side CAN Integration lead for OnStar 2G/3G Sunset Adapter project for 100k + active legacy customers.

• Led cross-functional workshops between subject matter experts and suppliers to ensure project requirements were met.

• Proactively tackled development and implementation challenges in test setups and provided direction for creating electrical testing harnesses while mentoring junior engineers.

• Engaged system architects, subject experts, and suppliers to work on OTA related change requests for existing telematics modules to spearhead GM’s evolving OTA strategy.

**FAW US Research and Development,** Plymouth, MI

Autonomous Vehicle Controls Engineer Feb 2020 – Aug 2020

Part of a team of controls engineers, systems engineers, and integration engineers for L4 AV Planning and Control.

• Researched Vehicle Dynamics models and methods of Lateral Control for vehicles under typical highway scenarios and tested a LQR based Lateral Controller in MATLAB/Simulink.

• Independently developed and executed test plans for PID based longitudinal and LQR based lateral control algorithms using MATLAB, allowing team to catch and resolve issues before integration.

• Worked closely with integration team to integrate and debug Software Releases in CarMaker SIL environment.

• Developed Object Oriented MATLAB scripts to analyze an visualize CAN data from MobilEye EyeQ4 system.

**Molex Connected Mobility**, Rochester Hills, MI

End-Of-Line Test Development Engineer Jan 2019 – Feb 2020

Automation solution developer for electronic module production and launch activities for manufacturing services group.

• Developed multi-threaded Python scripts to flash Firmware on in-vehicle Ethernet Gateway subsystem automating a 60 minute error-prone manual process down to 15 minutes with logs.

• Designed and documented manufacturing test solutions using UML methods and engaged in peer-review to verify functionality ensuring first-time quality of solutions.

• Led identification and mitigation of risks in production lines during PFMEA discussions with a global cross-functional team for Ethernet Switch Module subsystems and high-speed cables.

• Partnered with senior leaders to address production rework issues, creating timely work instructions that improved reliability and reduced testing time for multiple OEM programs.

**Ford Motor Company,** Dearborn, MI

Senior HIL Automation Engineer Apr 2013 - Nov 2018

Led design of Software and Hardware solutions for automated testing of highly distributed Infotainment, Body, and ADAS features as part of an interdisciplinary global team.

• Drove the integration and extension of Ford Sync automation tool created in Python enabling automated Infotainment testing at scale saving 100s of human hours.

• Initiated, designed, and delivered dSPACE license restructuring efforts that freed up $80k worth of wasted software licenses while also allowing team to scale up from 10 to 40 engineers.

• Streamlined exploratory testing with standardized layouts in dSPACE ControlDesk using Python API, cutting setup time by over 70% on commonly used workstations.

• Boosted testing efficiency with a Python-based automated Electronic Latch feature testing fixture, enabling continuous 24/7 remote testing and accelerating product development.

**EASi Engineering (Contract at Ford),** Dearborn, MI

HIL Engineer Jun 2012 – Apr 2013

Supported HIL Testing and Automation activities for HIL subsystems by integrating and extending AutomationDesk solutions.

• Improved Robotic HMI tester by increasing maintainability and setup time by ~50% via simplifying data structures.

• Slashed HIL part costs by 75% through BOM management of 3 simultaneous vehicle platforms, involving 100s of components.

• Presented automation solution demos to senior management.

**EDUCATION**

**BSc in Physics,** University of Windsor 2011

**BASc in Electrical Engineering,** University of Windsor 2009